Complete Summary

GUIDELINE TITLE

Screening for type 2 diabetes mellitus in adults: U.S. Preventive Services Task Force recommendation statement.

BIBLIOGRAPHIC SOURCE(S)

U.S. Preventive Services Task Force. Screening for type 2 diabetes mellitus in adults: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2008 Jun 3;148(11):846-54. [52 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

This release updates a previously published guideline: Screening for type 2 diabetes mellitus in adults: recommendations and rationale. Ann Intern Med 2003 Feb 4;138(3):212-4. [3 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Type 2 diabetes mellitus

GUIDELINE CATEGORY

Prevention
Risk Assessment
Screening

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To summarize the U.S. Preventive Services Task Force (USPSTF) recommendations and supporting scientific evidence on screening for type 2 diabetes mellitus in adults
- To update the 2003 USPSTF recommendations on screening for type 2 diabetes mellitus in adults

TARGET POPULATION

Adults without symptoms of diabetes or evidence of possible diabetes complications

INTERVENTIONS AND PRACTICES CONSIDERED

1. Risk assessment based on blood pressure measurement
2. Screening for type 2 diabetes mellitus using fasting plasma glucose (FPG), 2-hour postload plasma, or hemoglobin A_{1c}

MAJOR OUTCOMES CONSIDERED

Key Question 1: Is there direct evidence that systematic screening for type 2 diabetes, impaired fasting glucose (IFG), or impaired glucose tolerance (IGT) among asymptomatic adults improves health outcomes?

Key Question 2: Does beginning treatment of type 2 diabetes early as a result of screening provide an incremental benefit in health outcomes, compared with initiating treatment after clinical diagnosis?

Key Question 3: Does beginning treatment of IFG or IGT early as a result of screening provide an incremental benefit in final health outcomes compared with initiating treatment after clinical diagnosis of type 2 diabetes.

Key Question 4: What adverse effects result from screening a person for type 2 diabetes, IFG, or IGT?

Key Question 5: What adverse effects result from treating a person with type 2 diabetes, IFG, or IGT detected by screening?

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): A review of the literature was prepared by Oregon Evidence-based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

This report updates the prior evidence review of 2003 by Harris and colleagues, using the evidence that the prior authors synthesized, adding to it data from new trials and updates from previously included studies.

EPC staff searched Medline and the Cochrane Library for systematic reviews and relevant studies published in English between March 2001 (6 months prior to the cut-off for the prior search) and July 2007. Search strategies are contained in Appendix C1 of the Evidence Synthesis (see the "Availability of Companion Documents" field). For large trials included in the prior report, EPC searched for related recent publications that presented additional data that fulfilled the inclusion criteria. They also examined the reference lists of key included studies and contacted experts for additional citations. Relevant systematic reviews retrieved from their searches were examined, and for Key Questions, all studies included in those reviews were reviewed for potential inclusion in this report.

Titles and abstracts were screened (using inclusion criteria described in Appendix C2 of the Evidence Synthesis [see the "Availability of Companion Documents" field] by one author and a random sample of 1500 titles and abstracts were reviewed by two authors, giving a 5% margin of error on inter-rater reliability, assuming that both reviewers identified the same percentage of potentially relevant articles. Abstracts identified by one or both reviewers were retrieved in full-text format and reviewed in duplicate to determine inclusion status. Where there was disagreement between the two full-text reviewers, consensus was achieved through discussion.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): A review of the literature was prepared by Oregon Evidence-based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data were abstracted by one author and checked by a second. Key studies were reviewed and discussed by all authors. Quality assessment (internal validity) of individual randomized, controlled trials (RCTs) was performed by assessing factors that might introduce bias: adequate randomization, allocation concealment, baseline comparability of participants, blinding, and loss to follow-up (see Appendix C3 in the Evidence Synthesis [see the "Availability of Companion Documents" field]). Studies were rated as good, fair, or poor quality. Potential applicability to widespread primary care practice was also assessed based on the approach to participant recruitment and selection in each study. The quality of cohort and case control studies was performed using the USPSTF approach, again grading studies as good, fair, or poor. Pilot and cross-sectional studies were not assessed for quality. Systematic evidence reviews were rated as good, fair, or poor, using the methodology described in Appendix C4 of the Evidence Synthesis (see the "Availability of Companion Documents" field).

Modeling studies were identified from a the main search as well as from a recent, high-quality systematic review of diabetes mellitus 2 (DM2) screening by the National Health Service Research and Development Health Technology Assessment (HTA) Programme. EPC staff independently abstracted the relevant studies included in their report and relied upon their extensive assessments of model quality.

Statistical Analysis

EPC staff performed a meta-analysis to provide combined estimates of the effect of drug and lifestyle modification on reducing diabetes incidence. Most studies reported a hazard ratio (HR) and its standard error (SE) from a Cox regression. When HR was not reported, either a rate ratio standard error or risk ratio was calculated using reported data. Hazard ratio, rate ratio, and risk ratio could all be considered as a measure of relative risk (RR), and combined in the meta-analysis. For the Diabetes Reduction Assessment with Ramipril and Rosiglitazone Medication (DREAM) trial, a 2x2 factorial design was used, and HRs for both rosiglitazone and ramipril used data from all participants; therefore, the variance of the HR from each drug is multiplied by 2, so that result from each drug is down-weighted, and the DREAM trial receives appropriate weight as one study in the analysis.

Statistical heterogeneity was tested used the standard chi^2 test. The overall estimates of RR were obtained by a random effects model. Estimates from the random effects model incorporate the variability among studies and represent a more conservative approach. When there is no heterogeneity among studies, both fixed and random effects model would yield same results.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Balance Sheets
Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see Table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

Table 1. U.S. Preventive Services Task Force Recommendation Grid*

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero/Negative
High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

**A*, *B*, *C*, *D*, and *I (Insufficient)* represent the letter grades of recommendation or statement of insufficient evidence assigned by the U.S. Preventive Services Task Force after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field).

The overarching question that the Task Force seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized, controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the Task Force considers indirect evidence. To guide its selection of indirect evidence, the Task Force constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

1. Do the studies have the appropriate research design to answer the key question(s)?
2. To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
3. To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the external validity?)
4. How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
5. How consistent are the results of the studies?
6. Are there additional factors that assist us in drawing conclusions (e.g., presence or absence of dose-response effects, fit within a biologic model)?

The next step in the Task Force process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the Task Force's overall assessment of evidence was described as good, fair, or poor. The Task Force realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term *certainty* will now be used to describe the Task Force's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important to note that the Task Force makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The Task Force must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that 1 of the key questions in the analytic framework refers to the potential harms of the preventive service. The Task Force considers the evidence about the benefits and harms of preventive services separately and equally. Data about harms are often obtained from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the Task Force assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The Task Force would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the

general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The Task Force would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see "Availability of Companion Documents" field) summarizes the current terminology used by the Task Force to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF et al., Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147:871-875 [5 references].

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer/provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

COST ANALYSIS

Guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Peer Review. Before the U.S. Preventive Services Task Force makes its final determinations about recommendations on a given preventive service, the Evidence-Based Practice Center and the Agency for Healthcare Research and Quality send a draft evidence review to 4 to 6 external experts and to federal agencies and professional and disease-based health organizations with interests in the topic. They ask the experts to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the Task Force in memo form. In this way, the Task Force can consider these external comments and a final version of the systematic review before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment from reviewers representing professional societies, voluntary organizations and Federal agencies. These comments are discussed before the final recommendations are confirmed.

Comparison with Guidelines from Other Groups. Recommendations for screening from the following groups were discussed: the American Academy of Family Physicians, the American Academy of Obstetricians and Gynecologists, the Canadian Task Force on Preventive Health Care, and the American Diabetes Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The US Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the Levels of Certainty regarding Net Benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of Recommendations and Evidence

The USPSTF recommends screening for type 2 diabetes in asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg. **This is a grade B recommendation**.

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of routine screening for type 2 diabetes in asymptomatic adults with blood pressure of 135/80 mm Hg or lower. **This is an I statement**.

Clinical Considerations

Patient Population under Consideration

This recommendation concerns adults without symptoms of diabetes or evidence of possible diabetes complications. Symptoms of diabetes include polyuria, polydipsia, and polyphagia. Possible diabetes complications include nonhealing

ulcers or infections and established vascular disease (for example, coronary artery disease, stroke, and peripheral artery disease). Persons with these symptoms or conditions should be tested for diabetes.

Suggestions for Practice Regarding the I Statement

In persons with blood pressure of 135/80 mm Hg or lower, screening may be considered on an individual basis if knowledge of diabetes status would help inform decisions about coronary heart disease (CHD) prevention strategies, including assessment of CHD risk and subsequent consideration of lipid-lowering agents or aspirin.

For example, consider a patient for whom lipid-lowering treatment would be recommended if his or her 10-year CHD risk was 20% or greater (see Risk Assessment, below). If the patient's calculated risk was 17% without diabetes and greater than 20% with diabetes, then screening for diabetes would be useful in determining lipid treatment. However, if the calculated risk was 10% without diabetes and 15% with diabetes, then the screening test result would have no effect on the decision whether to use lipid-lowering treatment.

Risk Assessment

Blood pressure is an important predictor of complications of cardiovascular disease (CVD) (including CHD and stroke) in persons with type 2 diabetes mellitus and should be measured as the first step in applying this recommendation. The examination of global CHD and stroke risk allows the clinician to determine how aggressive treatment for CVD risk factors needs to be. In making this assessment, clinicians should use any of several validated CHD risk assessment calculators, such as the calculator based on Framingham Heart Study data (available at www.intmed.mcw.edu/clincalc/heartrisk.html).

Screening Tests

Three tests have been used to screen for diabetes: fasting plasma glucose, 2-hour postload plasma glucose, and hemoglobin A_{1c}. Each has advantages and disadvantages. The American Diabetes Association has recommended the fasting plasma glucose test for screening because it is easier and faster to perform, more convenient and acceptable to patients, and less expensive than other screening tests. The fasting plasma glucose test has more reproducible results than does the 2-hour postload plasma glucose test, has less intraindividual variation, and has similar predictive value for development of microvascular complications of diabetes. The American Diabetes Association defines diabetes as a fasting plasma glucose level of 126 mg/dL or greater and recommends confirmation with a repeated screening test on a separate day, especially for people with borderline results.

Treatment of Persons with Sustained Blood Pressure of 135/80 mm Hg or Greater

Blood pressure targets should be lower for persons who have type 2 diabetes mellitus than for those who do not. Lower blood pressure targets for persons with

diabetes and high blood pressure reduce CVD events compared with higher targets. Attention to other risk factors for CVD, such as physical inactivity, lipid levels, diet, and obesity, is also important, both to decrease risk for CHD and to improve glucose control.

Screening Intervals

The optimal screening interval is not known. The American Diabetes Association, on the basis of expert opinion, recommends a 3-year interval.

Other Approaches to Prevention

There is no evidence of benefit in health outcomes from screening for impaired glucose tolerance (IGT) or impaired fasting glucose (IFG). However, intensive programs of lifestyle modification (diet, exercise, and behavior) do reduce the incidence of diabetes. Regardless of whether the clinician and patient decide to screen for diabetes, people should eat a healthful diet, be active, and maintain a healthy weight—these behaviors have other benefits in addition to preventing or forestalling type 2 diabetes. The USPSTF recommends intensive interventions for obese persons who desire to lose weight. Population-based approaches to increasing physical activity and reducing obesity, as recommended by the Task Force on Community Preventive Services, should be supported.

Useful Resources

Evidence and USPSTF recommendations on blood pressure, diet, physical activity, and obesity are available at www.preventiveservices.ahrq.gov. The reviews and recommendations for the Task Force on Community Preventive Services may be found at www.thecommunityguide.org.

Definitions:

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
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C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer/provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.

Grade	Grade Definitions	Suggestions for Practice
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence

Level of Certainty	Description
	• Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

CLINICAL ALGORITHM(S)

None available

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Benefits of Detection and Early Treatment

Adults with Sustained Blood Pressure Greater than 135/80 mm Hg

The U.S. Preventive Services Task Force (USPSTF) found adequate evidence that, in adults who have hypertension and diabetes, lowering blood pressure below conventional target values reduces the incidence of cardiovascular events and cardiovascular mortality.

Adults with Blood Pressure 135/80 mm Hg or Lower

- The USPSTF found convincing evidence that intensive glycemic control in persons with clinically detected (as opposed to screening-detected) diabetes can reduce progression of microvascular disease. However, the benefits of tight glycemic control on microvascular clinical outcomes, such as severe visual impairment or end-stage renal disease, take years to become apparent. There is inadequate evidence that early diabetes control as a result of screening provides an incremental benefit for microvascular clinical outcomes compared with initiating treatment after clinical diagnosis.
- There is inadequate evidence that tight glycemic control significantly reduces macrovascular complications, such as myocardial infarction and stroke.

POTENTIAL HARMS

Harms of Detection and Early Treatment

The U.S. Preventive Services Task Force (USPSTF) found adequate evidence that the short-term harms of screening for diabetes, such as anxiety, are small. However, the longer-term effects of labeling a large proportion of the adult U.S. population as abnormal are unknown.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about preventive care services for patients without recognized signs or symptoms of the target condition.
- Recommendations are based on a systematic review of the evidence of the benefits and harms and an assessment of the net benefit of the service.
- The USPSTF recognizes that clinical or policy decisions involve more considerations than this body of evidence alone. Clinicians and policy-makers should understand the evidence but individualize decision making to the specific patient or situation.
- Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The experiences of the first and second U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the Agency for Healthcare Research and Quality will

make all USPSTF products available through its Web site. The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens up new possibilities for the appearance of the annual, pocket-size *Guide to Clinical Preventive Services*.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

IMPLEMENTATION TOOLS

Patient Resources
Personal Digital Assistant (PDA) Downloads
Pocket Guide/Reference Cards
Tool Kits

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1996 (revised 2008)

GUIDELINE DEVELOPER(S)

United States Preventive Services Task Force - Independent Expert Panel

GUIDELINE DEVELOPER COMMENT

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the U.S. Preventive Services Task Force do not necessarily reflect policy of the U.S. Department of Health and Human Services (DHHS) or its agencies.

SOURCE(S) OF FUNDING

United States Government

GUIDELINE COMMITTEE

U.S. Preventive Services Task Force (USPSTF)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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**Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to www.ahrq.gov/clinic/uspstfab.htm.*

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The U.S. Preventive Services Task Force has an explicit policy concerning conflict of interest. All members disclose at each meeting if they have a significant financial, professional/business, or intellectual conflict for each topic being discussed. Task Force members with conflicts may be recused from discussing or voting on recommendations about the topic in question.

Potential Financial Conflicts of Interest: None disclosed.

GUIDELINE STATUS

This is the current release of the guideline.

This release updates a previously published guideline: Screening for type 2 diabetes mellitus in adults: recommendations and rationale. Ann Intern Med 2003 Feb 4;138(3):212-4. [3 references]

GUIDELINE AVAILABILITY

Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site. and the Annals of Internal Medicine Web site.

Print copies: Available from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

Evidence Reviews:

- Norris SL, Kansagara D, Bougatsos C, Nygren P, Fu R. Screening for type 2 diabetes: update of 2003 systematic evidence review for the U.S. Preventive Services Task Force. Evidence synthesis No. 61. AHRQ Publication No. 08-05116-EF-1.Rockville (MD): Agency for Healthcare Research and Quality, 2008 Jun. Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site.
- Norris SL, Kansagara D, Bougatsos C, Fu R. Screening adults for type 2 diabetes: a review of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med 2008;148:855-868. Electronic copies: Available from the Annals of Internal Medicine Web site.
- Screening for type 2 diabetes mellitus in adults: clinical summary of U.S. Preventive Services Task Force recommendations. 2008. Electronic copies: Available in Portable Document Format (PDF) from the U.S. Preventive Services Task Force (USPSTF) Web site.

Background Articles:

- Barton M et al. How to read the new recommendation statement: methods update from the U.S. Preventive Services Task Force. Ann Intern Med. 2007;147:123-127.
- Guirguis-Blake J et al. Current processes of the U.S. Preventive Services Task Force: refining evidence-based recommendation development. Ann Intern Med. 2007;147:117-122. [2 references]
- Sawaya GF et al., Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147:871-875. [5 references].

Electronic copies: Available from U.S. Preventive Services Task Force (USPSTF) Web site.

The following is also available:

- The guide to clinical preventive services, 2007. Recommendations of the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), 2007. 228 p. Electronic copies available from the AHRQ Web site.
- A step-by-step guide to delivering clinical preventive services: a systems approach. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), 2002 May. 189 p. Electronic copies available from the AHRQ Web site. See the related QualityTool summary on the Health Care Innovations Exchange Web site.

Print copies: Available from the Agency for Healthcare Research and Quality Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

The Electronic Preventive Services Selector (ePSS), available as a PDA application and a web-based tool, is a quick hands-on tool designed to help primary care clinicians identify the screening, counseling, and preventive medication services that are appropriate for their patients. It is based on current recommendations of the USPSTF and can be searched by specific patient characteristics such as age, sex, and selected behavioral risk factors.

PATIENT RESOURCES

The following are available:

- Screening for type 2 diabetes in adults: U.S. Preventive Services Task Force recommendations. Ann Intern Med 2008 June 3; 148(11):I-30. Available from the Annals of Internal Medicine Web site.
- Men: Stay Healthy at Any Age – Checklist for Your Next Checkup. Rockville (MD): Agency for Healthcare Research and Quality. AHRQ Pub. No. 07-IP006-A. February 2007. Electronic copies: Available from the USPSTF Web site.
- Women: Stay Healthy at Any Age – Checklist for Your Next Checkup. Rockville (MD): Agency for Healthcare Research and Quality. AHRQ Pub. No. 07-IP005-A. February 2007. Electronic copies: Available from the USPSTF Web site.

Print copies: Available from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

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